



# Alternative Fueled Vehicles



**E**PA's State and Local Climate Change Program helps build awareness, expertise, and capacity to address the risk of climate change at the state and local levels. The program provides guidance and technical information to help state and local agencies prepare inventories of greenhouse gas emissions, develop action plans to reduce emissions, and educate their constituents. By emphasizing the many economic and environmental benefits of greenhouse gas reductions, the program encourages state and local decisionmakers to implement voluntary measures to reduce their greenhouse gas emissions.

## AFVs

**T**he transportation sector accounts for 30 percent of U.S. carbon dioxide emissions from fossil fuel consumption. Nearly two-thirds of these emissions result from gasoline consumption in automobiles and other vehicles. The remainder comes from other transportation activities, including diesel-fueled heavy-duty vehicles and jet-fueled aircraft. Cars and trucks affect air quality as well as increasing greenhouse gases, accounting for about half of all air pollution in the United States and more than 80 percent of urban air pollution.

Concerns about air pollution, energy security, and climate change have prompted the development of alternative fueled vehicles (AFVs) and policies to encourage their use. AFVs run on fuels such as compressed natural gas, ethanol, methanol, biodiesel, hydrogen, propane, and electricity.

In addition to the role of AFVs in improving urban air quality, they also can help reduce greenhouse gas emissions from the transportation sector. For example, compressed natural gas, liquid petroleum gas, and corn-based ethanol emit less CO<sub>2</sub> than gasoline does if the full fuel cycle is considered. Fuel cells and electric vehicles also have the potential to reduce greenhouse gas emissions significantly. Although the purchase price of AFVs is typically higher than the cost of comparable conventionally fueled models, some AFVs such as electric and natural gas vehicles have lower fuel and maintenance costs than gasoline vehicles do.

The federal government and some state governments offer tax incentives and grant programs to improve the affordability of AFVs. Several automakers have partnered with fuel providers and refueling station manufacturers to offer rebates and other incentives for AFVs. Most major auto manufacturers now offer many models of cars, trucks, and vans powered by alternative fuels, including compressed natural gas, ethanol, liquid propane, electricity, and hybrid vehicles. A number of automakers are developing fuel cell vehicles, which will use methanol or hydrogen as fuel. Fuel cells must overcome significant cost and technological barriers before they become commercially viable for passenger vehicles.

## The Federal Role

The Energy Policy Act of 1992 (EPACT) requires federal, state, and fuel provider fleets to acquire alternative fueled vehicles. If fully implemented, it also will require private and local government fleets to acquire AFVs. In addition, EPACT establishes a grant program to states to assist in the incremental cost of AFVs. This effort is funded through the U.S. Department of Energy's State Energy Program, Special Program for Alternative Fuels.

### BENEFITS OF ALTERNATIVE FUELED VEHICLES

- Reduced dependence on foreign oil.
- Job creation.
- Less air pollution and fewer emissions of greenhouse gases.
- Potential for reduced fuel and maintenance costs.
- Many positive economic impacts, particularly with alternative fuels derived from domestic resources.

Under the Clean Air Act Amendments of 1990, fleet vehicles in areas with heavy air pollution must use alternative fuels, reformulated gasoline, or clean diesel fuel.

The U.S. Department of Energy, U.S.

Environmental Protection Agency, and the U.S.

Department of Transportation provide grants to state and local governments for AFV infrastructure and fleet purchases.

A list of federal grant opportunities is available on DOE's Clean Cities website at <http://www.ccities.doe.gov>.

Federal tax credits of \$2,000 to \$50,000 are available for the purchase or conversion of qualified clean-fuel vehicles and up to \$4,000 for electric vehicles.

The Clean Cities program, coordinated by DOE, is a locally based partnership of government and industry to expand the use of alternative fuels by accelerating the deployment of AFVs and building a local refueling infrastructure. There are 75 Clean Cities around the country, and the 3,500 stakeholders own and operate 150,000 AFVs. Clean Cities provides information about AFVs, a forum for exchange of useful information about the AFV industry, and a coordinated effort to establish local refueling facilities.

The federal 1998 Transportation Equity Act (TEA-21) will increase eligibility for private and public sector partnerships for fleet conversions to AFVs. It also provides funding for an alternative fuel transit program.

### State Experiences with AFVs

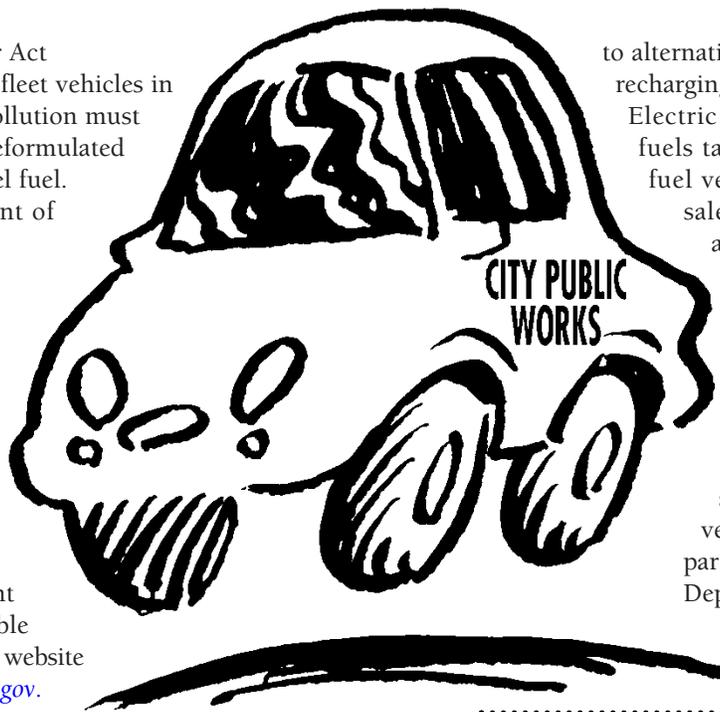
A number of states offer economic incentives and technical assistance for alternative fueled vehicles.

#### California

California's strict auto emissions standards led the state to adopt incentives for AFVs. The state's various Air Pollution Control Districts and some utilities in California offer financial incentives such as cash rebates for the purchase of AFVs. Air Pollution Control Districts that have not attained air quality standards may fund projects such as AFV programs and incentives by collecting an annual surcharge of up to \$4 per vehicle as part of the California Department of Motor Vehicles' registration fee. In the state's own fleets, AFVs must account for 75 percent of new vehicles purchased annually by the year 2000.

#### Maryland

Maryland has made a commitment to AFVs and has several tax incentives to encourage their use. State income tax credits are available for the costs of purchasing or converting vehicles



to alternative fuels. Equipment for refueling and recharging AFVs is exempt from property taxes. Electric vehicles are exempt from the motor fuels tax, and the conversion costs for clean fuel vehicles are exempt from the state's sales tax. Several utilities in Maryland are

active in promoting AFVs, and Potomac Electric Power Company has a special rate for off-peak charging of electric vehicles.

Maryland's state fleet currently includes 175 vehicles using compressed and liquid natural gas, propane, methanol, and electricity. The state also supports alternative fueled vehicle technology through public/private partnerships with industry and the U.S. Department of Energy.

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### For More Information

The U.S. Department of Energy's *Alternative Fuels Data Center*, operated by the National Renewable Energy Laboratory, is a comprehensive source for information on alternative fuels, alternative fueled vehicles, policies, and grants.

Tel: 800-423-1DOE

Website: <http://www.afdc.doe.gov/>

DOE's *Alternative Fuel Vehicle Fleet Buyer's Guide* is a web-based guide to help fleet managers in acquiring alternative fueled vehicles.

Website: <http://www.fleets.doe.gov/>

DOE's *Clean Cities Program* is a locally based government and industry partnership to expand the use of alternatives to gasoline and diesel fuel. The program creates and carries out an effective plan at the local level for establishing a sustainable, nationwide alternative fuels market.

Tel: 800-CCITIES

Website: <http://www.ccities.doe.gov/>

CALSTART, a nonprofit consortium dedicated to creating an advanced transportation technologies industry for California, offers information and assistance on AFVs, including a fleet resource center. Tel: 510-864-3000 or 626-744-5600

Website: <http://www.calstart.org/>

The federal *Transportation Equity Act* includes new incentives for AFVs and fleets.

Tel: 1-800-240-5674

Website: <http://www.fhwa.dot.gov/tea21/index.htm>

An online user's guide is available at <http://istea.org/guide/guideonline.htm>

The U.S. Environmental Protection Agency's *State and Local Climate Change Program* helps states and communities reduce emissions of greenhouse gases in a cost-effective manner while addressing other environmental problems.

Website: <http://www.epa.gov/globalwarming/> and click on "Public Decision Makers" under the "Visitors Center."